

$$y_1 = 4x - 5 \qquad y_2 = \frac{x}{2} + 4$$

$$y_1 = y_2$$

Solve for the Pt of Intersection

$$y_1 = 4x - 5 \qquad y_2 = \frac{1}{2}x + 4$$

$$y_1 = y_2$$

$$4x - 5 = \frac{1}{2}x + 4$$

$$2(4x-5) = \frac{1}{2}x + 4$$

$$8x - 10 = \frac{2x}{2} + 3$$

$$8x - 10 = 1x + 5$$

$$3x - 1x - 10 = 9 \quad y = 4x - 5$$

$$7x - 10 = 8 \quad y = 4 \frac{1}{2} \left(\frac{18}{7} \right) \cdot 5$$

$$7x = y + 10$$

$$7x = 19$$

$\bar{r} \quad \bar{r}$

$$x = 19$$

7

$$\left(\frac{18}{7}, \frac{37}{7}\right)$$

Interpreting the Point of Intersection

Find the Break Even Point for a toy doll manufacturer. The company has a set-up cost of \$300 and a manufacturing cost of \$4 per doll. If the company wanted the dolls for \$6, how many dolls would it take to break even?

$Rev = 6x$ $x = \# \text{ of dolls}$
 $TC = 4x + 300$
 $y_1 = 6x$ $y_2 = 4x + 300$
 $y_1 = y_2$
 $6x = 4x + 300$
 $6x - 4x = 300$
 $\frac{2x}{2} = \frac{300}{2}$
 $x = 150$
 $y = 6x$ $(150, 900)$
 $y = 4x + 300$
 $y = 900$

Nov 13-8:40 AM

Solving Graphically

The image shows a coordinate plane with a grid. The x-axis is labeled with -500 and 0. The y-axis is labeled with 500, 1000, and 1500. Two lines are plotted: a blue line and a red line. The blue line passes through the points (0, 300) and (150, 900). The red line passes through the points (0, 0) and (150, 900). The two lines intersect at the point (150, 900), which is marked with a black dot and labeled with its coordinates. On the left side of the graph, there is a panel with two equations: $y = 6x$ and $y = 4x + 300$. The blue line corresponds to $y = 4x + 300$ and the red line corresponds to $y = 6x$.

Interpreting the Point of Intersection

Find the Break Even Point for a toy doll manufacturer. The company has a set-up cost of \$300 and a manufacturing cost of \$4 per doll. If the company sold the doll's for \$6, how many dolls would it take to break even?

$$T_c = 300 + 4d$$

$$Rev = bd$$

Revenue

= amount of \$ collected by the sale of the dolls

Total Cost-cost per unit plus the set up cost

Apr 27-2:43 PM

Solving Algebraically

$$TC = 300 + 4x$$

$$y_1 = 4x + 300$$

$$y_2 = 6x$$

$$y_1 = y_2$$

$$4x + 300 = 6x$$

$$300 = 6x - 4x$$

$$\frac{300}{2} = \frac{2x}{2}$$

$$150 = x$$

$$y_2 = 6x$$

$$y_2 = 6(150)$$

$$y_2 = 900$$

Pt of Intersection
(150, 900)

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At 150 dolls the toy doll manufacturer will break even at \$900. Before 150 dolls the company will lose money. After 150 dolls the company will earn a profit.

Apr 27-3:01 PM

p 158 q6 Cost Comparison

x = # of movies

Movies to Go = $2.50x$

Video renters = $2.00x + 10$

$$y_1 = 2.50x$$

$$y_2 = 2.00x + 10$$

$$y_1 = y_2$$

$$2.50x = 2.00x + 10$$

$$2.50x - 2.00x = 10$$

$$.50x = 10$$

$$\frac{.50x}{0.50} = \frac{10}{0.50}$$

$$x = 20$$

(20, 50)

At 20 movies both stores will charge \$50.

At less than 20 movies Movies to Go is cheapest.

After 20 movies Video renters is cheapest.

p 158 & 159 q 7,9,10 & 11

Apr 27-3:05 PM